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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,105	03/12/2001	Norbert A. Feliss	SJ0920000138US1	8988

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EXAMINER
LE, MINH

ART UNIT	PAPER NUMBER
2652	

DATE MAILED: 02/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/804,105	Applicant(s) FELISS ET AL.	
	Examiner Minh Le	Art Unit 2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/14/2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4, 7-10, 12-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4, 7-10, 12-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This communication is responsive to Amendment A, filed 11/14/2002.

2. Claims 1-4, 7-10 and 12-15 are pending in this application. Claims 1, 8 and 13 are independent claims. In the Amendment A, claims 5, 6, 11 and 16 are canceled; claims 1-4, 7-10 and 12-15 are amended. This action is made Final.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-4 and 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Hipwell et al. (U.S. Patent No. 6,483,668) and in view of Comstock et al. (U.S. Patent No. 6,324,031).

As per claim 1 Hipwell shows in Fig. 4 a slider 120 for a disk drive comprising a supporting structure 80 having a top surface including a pocket (the perimeter rim cap 122 extends above the slider body to form a pocket) and a plurality of protrusions 94, 96 protruding from the pocket, each of the protrusions having a protruding end the defines an air bearing surface, wherein the air bearing surface are completely free coating (See col. 3, lines 24-38). A coating layer 140 (See Fig. 8) is formed from a material that is softer than the supporting structure (See col. 4, lines 1-8).

As per claim 1, Hipwell does not expressly disclose a slider wherein a coating is located on the entire top surface of the supporting structure other than the air bearing surfaces of the protrusions, such that the air bearing surfaces are completely free of the coating.

Comstock shows in Fig. 2 a slider wherein a coating 20 is located on the entire top surface of the supporting structure other than the air bearing surfaces of the protrusions, such that the air bearing surfaces are completely free of the coating (See Figs. 3a-c, col. 4, lines 57).

It would have been obvious to a person having ordinary skill in the art at the time invention was made to provide a slider wherein a coating is located on the entire top surface of the supporting structure other than the air bearing surfaces of the protrusions, such that the air bearing surfaces are completely free of the coating. The motivation would have been: "This coating is applied in order to reduce stiction at take-off and sliding friction at landing or low-speeds", as taught by Comstock in col. 4, lines 52-57.

As per claim 3, Hipwell shows in Fig. 4 a slider 120 for a disk drive wherein the top surface further has a leading edge 124, lateral edges 128, 129, a trailing edge 126, and a plurality of corners located at intersections of the leading edge, the lateral edges, and the trailing edge, and the coating 140 (layer 140 in Fig. 8) is located on each of the corners of the top surface of the supporting structure (See col. 3, lines 39-51).

As per claim 4, Hipwell shows in Fig. 4 a slider wherein the top surface has a leading edge, a trailing edge, and lateral edges extending therebetween, and the coating is located along and completely coats an entire length of the lateral edges of the top surface of the supporting structure (See col. 4, lines 1-8).

As per claim 7, Hipwell teaches a slider wherein the coating is selected from the group consisting of metals, carbon, doped carbon, and polymers (See col. 4, lines 1-8).

As per claim 2, Hipwell does not expressly disclose a slider wherein the coating is located on and completely encases the entire pocket of the supporting structure.

Comstock shows in Fig. 2 a slider wherein the coating 20 is located on the entire top surface, and completely encases the entire pocket of the supporting structure (See Figs. 3a-c, col. 4, lines 57).

It would have been obvious to a person having ordinary skill in the art at the time invention was made to provide a slider wherein the coating is located on and completely encases the entire pocket of the supporting structure. The motivation would have been: "This coating is applied in order to reduce stiction at take-off and sliding friction at landing or low-speeds", as taught by Comstock in col. 4, lines 52-57.

5. Claims 8-10 and 12-15 rejected under 35 U.S.C. 103(a) as being unpatentable over Hipwell et al. (U.S. Patent No. 6,483,668) and in view of Boutaghou et al. (U.S. Patent No. 6,229,671).

As per claim 8, Hipwell shows in Fig. 1 a slider for supporting a transducer for use in a disc drive, comprising a supporting structure 80 having a top surface including a pocket, a leading edge 124, a trailing edge 126, lateral edges 128, 129 extending between the leading and trailing edges, corners located at intersections between the leading edge 124, the lateral edge 128, 129, and the trailing edge 126, a plurality of air bearing protrusions 94, 94 protruding from the pocket (See col. 3, lines 24-38).

As per claims 8, Hipwell does not expressly disclose the slider wherein, at least one shock-absorbing protrusion protruding from the pocket and having a height with respect to the pocket that differs from a height of the plurality of air bearing protrusions, such that the at least one shock-absorbing protrusion is discontinuous with the plurality of air bearing protrusions, and wherein each of air bearing protrusions and the at least one shock-absorbing protrusion has a

protruding end that defines an air bearing surface, and the at least one shock-absorbing protrusion comprises a material that is softer than the supporting structure.

Boutaghou shows in Figs. 10 and 11 a slider 72-2 wherein, at least one shock-absorbing protrusion protruding from the pocket and having a height with respect to the pocket that differs from a height of the plurality of air bearing protrusions (see Fig. 16), such that the at least one shock-absorbing protrusion 156 is discontinuous with the plurality of air bearing protrusions 96, 98, and wherein each of air bearing protrusions 96, 98 and the at least one shock-absorbing protrusion 156 has a protruding end that defines an air bearing surface, and the at least one shock-absorbing protrusion 156 comprises a material that is softer than the supporting structure (*the shock-pads are formed of a relatively soft energy absorbent material as polymer, which dampens and absorbs impact energy for contact between the slider and the disc surface, See col. 5, lines 60-66*).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a slider wherein, at least one shock-absorbing protrusion protruding from the pocket and having a height with respect to the pocket that differs from a height of the plurality of air bearing protrusions, such that the at least one shock-absorbing protrusion is discontinuous with the plurality of air bearing protrusions, and wherein each of air bearing protrusions and the at least one shock-absorbing protrusion has a protruding end that defines an air bearing surface, and the at least one shock-absorbing protrusion comprises a material that is softer than the supporting structure. The motivation would have been: A slider including shock member adapted to provide a contact interface between a disc surface and the slider. In particular, a surface of the slider aligned with the disc surface includes shock members.

The members are separate from the bearing surfaces and extend above a base of the slider to provide a desired contact interface, as taught by Boutaghou in summary of the invention.

As per claim 13, Hipwell shows in Fig. 1 a magnetic recording device 50 for reading or writing magnetically, comprising in combination a disk 54 having a substrate and metallic magnetic layer, a head 60 support on a slider 120 (See Fig. 4) for magnetically reading data to or writing data from the magnetic layer on the disc, the slider (See Fig. 4) comprising a supporting structure 80 having a top surface with a pocket, the top surface including a leading edge 124, a trailing edge 126, lateral edges 128, 129 extending between the leading and trailing edges, and a plurality of corners located at intersections between the leading edge 124, the lateral edges 128, 129, and the trailing edge 126, a plurality of air bearing protrusions 94, 96 protruding from the pocket, each of the air bearing protrusions has a protruding end (the top surfaces of protrusions 94, 96) that defines a air bearing surface (See col. 3, lines 24-38). And a motor operable to rotate the disk ("a spindle motor" in col. line 30), an actuator 56 (See Fig.1) connected to the slider for moving a head across the disc.

As per claim 13, Hipwell does not expressly disclose a recording device comprising a slider wherein, at least some of the air bearing protrusions are shock-absorbing protrusions each having a height with respect to the pocket that differs from a height of other ones of the air bearing protrusions, such that the shock-absorbing protrusions are discontinuous with said other ones of the air bearing protrusions, and at least the air bearing surface of the shock-absorbing protrusions comprise a material that is softer than the supporting structure.

Boutaghou shows in Figs. 1, 10, 11 and 16 a recording device 50 comprising a slider wherein, at least some of the air bearing protrusions are shock-absorbing protrusions 154, 156

each having a height with respect to the pocket that differs from a height of other ones of the air bearing protrusions (See Fig. 16), such that the shock-absorbing protrusions 154, 156 are discontinuous with said other ones of the air bearing protrusions 96, 98, and at least the air bearing surface of the shock-absorbing protrusions comprise a material that is softer than the supporting structure (*the shock-pads are formed of a relatively soft energy absorbent material as polymer, which dampens and absorbs impact energy for contact between the slider and the disc surface, See col. 5, lines 60-66*).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a recording device comprising a slider wherein, at least some of the air bearing protrusions are shock-absorbing protrusions each having a height with respect to the pocket that differs from a height of other ones of the air bearing protrusions, such that the shock-absorbing protrusions are discontinuous with said other ones of the air bearing protrusions, and at least the air bearing surface of the shock-absorbing protrusions comprise a material that is softer than the supporting structure. The motivation would have been: A slider including shock member adapted to provide a contact interface between a disc surface and the slider. In particular, a surface of the slider aligned with the disc surface includes shock members. The members are separate from the bearing surfaces and extend above a base of the slider to provide a desired contact interface, as taught by Boutaghou in summary of the invention.

As to claims 10 and 15, Hipwell shows in Fig. 9 a slider wherein the shock-absorbing protrusion comprises a plurality absorbing protrusions 164, 166, each of which is located along an entire length of a respective one of the lateral edges of the top surface of the supporting structure (See col. 4, lines 23-31).

As to claims 9 and 14, Hipweel does not expressly disclose a slider wherein the at least one shock-absorbing protrusion comprises a plurality of shock-absorbing protrusions each of which is located at a respective one of the corners of the top surface of the supporting structure.

Boutaghou shows in Fig. 11 a slider wherein the at least one shock-absorbing protrusion comprises a plurality of shock-absorbing protrusions 156, 154, 150, 152, each of which is located at a respective one of the corners of the top surface of the supporting structure (See col. 6, lines 3-11).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a slider wherein the at least one shock-absorbing protrusion comprises a plurality of shock-absorbing protrusions each of which is located at a respective one of the corners of the top surface of the supporting structure, in order to make a slider wherein the shock pads protect a disc drive under shock and/or load and unload conditions, as taught by Boutaghou in col. 7, lines 34-36.

As per claim 12, Hipwell does not expressly disclose the slider wherein the shock absorbing protrusion comprises a material that is selected from the group consisting of metals, carbon, doped carbon, and polymers and is softer than the supporting structure.

Boutaghou disclose in Fig. 16 a slider 72-3 wherein the shock-absorbing protrusion 186 comprises a material that is selected from the group consisting of metals, carbon, doped carbon, and polymers and is softer than the supporting structure ("polymer material" in col. 5, line 65).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a slider wherein the shock-absorbing protrusion comprises a material that is selected from the group consisting of metals, carbon, doped carbon, and polymers

and is softer than the supporting structure. The motivation would have been: A slider including shock member adapted to provide a contact interface between a disc surface and the slider. In particular, a surface of the slider aligned with the disc surface includes shock members. The members are separate from the bearing surfaces and extend above a base of the slider to provide a desired contact interface, as taught by Boutaghou in summary of the invention.

Prior art cited

6. Reference U.S. Pat. No. 6,462,909 shows a disc head slider having resistant pads for enhanced damping.

Response to Arguments

7. Applicant's arguments with respect to claim 1 have been fully considered but they are not persuasive.

Applicant argues that the coating of Comstock is taught to be an electrostatic discharge coating.

The examiner disagrees for the following reasons:

Comstock does not only disclose the coating for reducing electrostatic charge but also for reducing stiction at take-off and sliding friction at landing or low speed ("This coating is applied in order to reduce stiction at take-off and sliding friction at landing or low-speeds. In this case, the tapered coating in the load-bearing surface allow head transducer contact with recording surface when angle Ψ collapses to zero at rest" in col. 4, lines 52-57).

The Comstock coating material (carbon, gold, silver, or copper in col. 5, lines 47-49) is the same as the present invention coating material (metal or carbon in claim 7).

8. Applicant's arguments with respect to claims 1-4, 7-10 and 13-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Inquires

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Le whose telephone number is (703) 305-7867. The examiner can normally be reached on 10:00AM - 7:00PM (Mon- Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T Nguyen can be reached on (703) 305-9687. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3718 for regular communications and (703) 305-3718 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

ML
January 27, 2003

HOA T. NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600
1/26/03